

Chapter 3

Affected Environment

Introduction

This Chapter presents a description of the environment at Meadowood Farm. There are 20 elements (Table 3-1) that are to be considered in evaluating the impact of a federal action. Of these 20 elements, 15 are considered to be critical environmental elements and must be addressed. However, some of the critical elements are not present or would not be affected by selection of one of the alternatives or the Proposed Action.

Table 3-1 Environmental Elements Present or Not Present

Environmental Elements	Present	Not Present
Air Quality *	x	
Areas of Critical Environmental Concern *		x
Coastal Zone Management *	x	
Cultural Resources *	x	
Environmental Justice *		x
Farm Lands (Prime or Unique) *		x
Flood Plains*		x
Invasive, Nonnative Species *	x	
Minerals **	x	
Native American Religious Concerns *		x
Recreation and Visual **	x	
Socioeconomic**	x	
Soils **	x	
Threatened and Endangered Species *	x	
Waste, Hazardous or Solid *	x	
Water Quality, Surface and Ground *	x	
Wetland/Riparian Zones *	x	
Wild and Scenic Rivers *		x
Wilderness *		x
Wildlife and Vegetation **	x	

*Critical, covered by statute

**Not Covered by Statute

Air Quality and Climate

All information in this section is taken from the Fairfax County Air Quality Monitoring Annual Summary for 1998.

The climate in Fairfax County is mild with an average temperature of approximately 57 degrees Fahrenheit. Average rainfall is approximately 42 inches per year and occurs primarily as rain, although during the winter months, snow and sleet are not unusual. The predominant wind direction in the summer months is from the southwest. In the winter and late fall, the predominant winds are from the northwest. Higher wind speeds are generally associated with winds coming from the northwest.

Fairfax County's air quality program consists of monitoring for the Environmental Protection Agency's (EPA) criteria pollutants which are: ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), and particulate matter (PM₁₀). Also monitored are other non-criteria pollutants, total suspended particulates (TSP), nitric oxide (NO), and meteorological parameters (wind direction, wind speed, temperature, and rainfall).

The monitoring site nearest the Meadowood Farm property is the Gunston Monitoring Station. Sulfur dioxide, carbon monoxide, and nitrogen dioxide are not monitored at the Gunston Monitoring Station. However, by interpreting data from other stations at which the criteria pollutants are monitored, the standard defined by the EPA may be exceeded on selected days in a given year, but the overall air quality in Fairfax County is generally within EPA standards throughout the year. There have been no violations of the county standards for TSP levels and lead.

Areas of Critical Environmental Concern

The Federal Land Policy and Management Act (43 U.S.C. sections 1701, 1761-1771) provides for the designation of Areas of Critical Environmental Concern (ACEC), and establishes national policy for the protection of such lands. The ACEC designation is used to protect important historic, cultural, and scenic values; fish, wildlife or other natural resources, systems, or processes; human life and safety; or to identify natural hazards. To be considered an ACEC, an area must be managed by BLM and must meet the criteria of relevance and importance as established in 43 CFR 1610.7-2 and BLM Manual 1613.

Currently, there are no areas on Meadowood Farm that have been identified for nomination as an ACEC. However, after more intensive inventories are conducted, area(s) might be identified that would qualify for ACEC designation. If they are found, a land-use plan modification involving the public would be completed prior to a decision to make the area(s) an ACEC.

Coastal Zone Management

The Virginia coastal zone is defined as Tidewater Virginia in the Code of Virginia, Section 28.2-100. This zone encompasses 29 counties, 15 cities and 43 towns. Tidewater Virginia also includes all of the waters therein, and out to the three-mile Territorial Sea boundary. All of Virginia's Atlantic coast watershed, as well as parts of the Chesapeake Bay and the Albemarle-Pamlico Sound watersheds, are included.

Virginia established a federally approved Coastal Resources Program in 1986. This authorizes the state to require that federal actions in its coastal zone be consistent with the state's Coastal Resources Program. Fairfax County is one of the counties covered by Virginia's Coastal Resource Program. The 15 CFR 930.31 states in part that a federal development project is a federal activity involving the planning, construction, modification, or removal of public works, facilities, or other structures, and the acquisition, utilization, or disposal of land or water resources. Therefore, any actions, including this land-use plan and all future activities, will be subject to a coastal zone consistency review.

Cultural Resources

The Meadowood Farm property has not been surveyed for cultural resources, although four surveys have been conducted within the vicinity. The property is set in an area of moderate to high potential for cultural resource sites (Hill, et al. 2000). Specific locations of cultural resource sites are unknown. These potential sites may range in age from the Paleo-era to the first half of the 20th Century. In particular, the property that now comprises Meadowood Farm has been associated with notable local families including Haislip, Magruder, Wiley, Massey and Cocke (Hill, et al. 2000).

In the early 1980s, two cultural resource surveys were conducted within one-half mile of Meadowood Farm. An underwater survey in Belmont Bay, about 1 mile from Meadowood Farm, was conducted in 1994, and in 2000, a cultural resource inventory was conducted in Pohick Bay Regional Park (Hill, et al. 2000). Twenty-six archeological sites have been recorded in the vicinity of Meadowood Farm. Of these sites, 16 need more work to determine their eligibility for listing on the National Register of Historic Places. In addition to the archeological sites, there are five historic properties ranging from a 1783 boundary marker to an early 20th Century family cemetery (Hill, et al. 2000).

Historically, the Meadowood Farm property was used primarily for agricultural purposes with limited support activities, such as harvesting trees for mulch and excavating sand and gravel for internal roads. These activities, ongoing for over 300 years, have probably impacted cultural resources sites on Meadowood Farm.

Environmental Justice

Executive Order (E.O.) 12898 directs federal agencies to address whether their programs, policies and activities would have a disproportionately high and adverse human health or environmental effect on minority populations and low-income populations. There are no communities, businesses or multiple-family dwellings in a 1-mile radius of Meadowood Farm that are known to be inhabited or owned by predominantly minority or low-income families or individuals. Furthermore, there are no known minorities or low-income families who inhabit the dwellings on Meadowood Farm who could be affected by the decisions of this land-use plan.

Farmlands, Prime and Unique

Prime Farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture (USDA). The USDA defines prime farmland as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses. The land can be cropland, pastureland, rangeland, forestland, or other land, but not urban built-up land.

The USDA considers prime farmland to be of major importance in meeting the nation's short- and long-range needs for food and fiber. Prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The level of acidity or alkalinity is acceptable. Prime farmland has few or no rocks and is permeable to water and air. It is not excessively erodible or saturated and is not frequently flooded during the growing season.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and other fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality and/or high yields of a specific crop when treated and managed according to acceptable farming methods. Examples of such crops are citrus, tree nuts, olives, cranberries, fruits, and vegetables.

The USDA Natural Resource Conservation Service has classified the Matapeake, Mattapex, Sassafras and Woodstown soils series as being prime farmland if not built-up (urban) land or water. These soils series are present on Meadowood Farm (see Soils section later in this Chapter and Appendix C for a more in-depth discussion of the soils found on Meadowood Farm). However, on Meadowood Farm these soils series are not being used to support the nation's short- and long-range needs for food and fiber, so this property is not considered to be prime or unique farmland.

Flood Plains

A flood plain, as defined in E.O.11988, as amended, is the lowland and relatively flat areas adjoining inland and coastal waters (and flood-prone areas of offshore islands) including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year. Meadowood Farm is considered to be upland, does not adjoin inland or coastal waters, and is not considered to be subject to a one percent or greater chance of flooding in a given year. Therefore, Meadowood Farm is not within a flood plain as defined in E.O. 11988.

Invasive, Exotic Species

An exotic species is defined as any species that is not native to a geographic area. A significant portion of the flora of Northern Virginia is exotic. Exotic species are present as naturalized species within the various plant communities or are planted as landscape trees and shrubs within the boundaries of Meadowood Farm. An invasive species is one that spreads rapidly and occurs in greater abundance than may be desirable. Thus, the determination that a species is invasive is not clear cut and is subjective, particularly without detailed ecological studies for a particular geographic region. Many different lists exist of invasive and exotic species, and there is not a universal agreement among ecologists and botanists as to which exotic species should be considered to be invasive versus naturalized and common throughout this region. However, as a standard for this planning document, exotic species of plants and animals addressed as invasive are those so considered by the U.S. Department of Agriculture or the Virginia Department of Conservation and Recreation.

There were many exotic species identified on Meadowood Farm during resource assessments conducted by George Mason University in the 2002 growing season. The major species identified are Japanese stilt grass, Japanese honeysuckle, lespedeza, trumpet vine, multiflora rose, orchard grass, paulownia, deodar cedar, tree of heaven, giant foxtail, green foxtail, and English plantain. Except for paulownia, deodar cedar, green foxtail, and English plantain, these exotic species are also considered invasive species. The stilt grass and the honeysuckle are the most invasive species on Meadowood Farm. The orchard grass appears to be a cultivated co-dominant in the historic hayfields.

Exotic vertebrate animals documented on the farm include the house mouse, the Norway rat, the European starling, and the English sparrow. Though native to North America, the brown-headed cowbird is considered by many to be invasive in this area because it takes advantage of openings in the forest, forages in adjacent artificially short grasses, and parasitizes the nests of many species of song birds.

Minerals

The upper part of the Mason Neck Peninsula, southeast of Old Colchester Road, has areas with high sand and gravel potential. These Pleistocene to Miocene-age terrace deposits of the coastal plain generally occur in areas with elevations that exceed 120 feet above mean sea level.

Southwest of the Meadowood Farm tract, about 5 miles along the regional strike, an established sulfide and associated minerals trend is present (Sweet, 1983). Therefore, there is moderate potential for these minerals on Meadowood Farm. The coastal plain sediments are in excess of 50 feet thick in the Meadowood Farm area, so the actual existence of any inferred mineralization would have to be proven by exploration of the underlying Piedmont rocks.

There is no potential for oil and gas in these thin coastal plain sediments due to lack of source and reservoir rock and thermal maturation for petroleum generation and accumulation. The sediments overlie the igneous and metamorphic crystalline bedrock of the Piedmont.

There is one sand and gravel pit on Meadowood Farm that has been supplying, for about 20 years, natural aggregate for maintenance on unpaved farm roads (Dave Chapin, personal communication). It is located about 700 feet west of the large horse barn (see Appendix A Map 2). The pit is U-shaped, is approximately 200 feet in diameter, and covers about 0.75 acre.

The approximately 500-foot diameter on the closing 130-foot contour of the small hill where the pit is located indicates an area of potential terrace deposit aggregate of about 4.5 acres. Assuming the current usage rate (0.75 acre pit in 20 years), this hill area could yield aggregate for about 100 years.

Native American Religious Concerns

Native Americans were not consulted for this action. The property has been in private ownership for over 200 years. Federally recognized Native American tribal use of the property for religious activities has not occurred.

Recreation and Visual Resources

Recreation

General Description Virginia's Outdoor Recreation Plan identified Fairfax County as being in the Northern Virginia Outdoor Recreation Planning Region (Region 8). The region covers approximately 1,300 square miles and is home to more than 1.4 million people. Therefore, it is considered to be primarily urban in character. The predominant physiographic feature of the region is that of the Piedmont. The gently rolling hills and forested areas of the Piedmont offer opportunities for horseback riding, picnicking and camping. The coastal plains of eastern Fairfax County provide additional opportunities for sunbathing, boating, swimming, fishing and other

water-oriented recreation. Although there are various parks nearby that provide fishing and boating opportunities, there are no public shoreline fishing sites on the Mason Neck Peninsula, and public pond fishing opportunities are rare in this area (J.Odenkirk, personal communication, August 7, 2002). Virginia's Outdoor Recreation Plan identified Fairfax County as offering some of the most state-of-the-art recreation facilities in the Nation (1996 Virginia Outdoors Plan).

The recreation opportunities which may be offered at Meadowood Farm and correspond to those discussed in the 2002 Commonwealth of Virginia, Department of Conservation and Recreation's, *Virginia Outdoors Plan: Our Commonwealth*, can be found in Table 3-2. The activities selected for this table were chosen based upon their direct application to the types of recreation activities that potentially would take place on Meadowood Farm. The report indicates the median age of the population of the county has increased over the past 50 years, from 27.3 in 1950 to 37 in 1998. This change in median age affects recreation activities of community members.

Table 3-2. Select Recreation Activities (Northern Virginia)

Activity	Supply
Hiking/backpacking	672 miles
Hunting	28,309 acres
Horseback riding	134 miles
Nature study/programs	35 sites
Jogging/fitness trail use	30 miles*
Camping	1,775 sites
Picnicking	5,438 tables
Fishing (lake, river, bay use)	30,072 acres

Source: *Virginia Outdoors Plan: Our Commonwealth (2002)* by Commonwealth of Virginia, Department of Conservation and Recreation.

*Figures from 1996 Virginia Outdoors Plan

Social: The 1996 Virginia Outdoors Plan examined demographic changes. The results indicated that "... richness and variation has the potential to affect recreation and outdoor resources in a variety of ways." In the analysis, communities need to help land managers define their own needs and cultural patterns, differentiate their own sets of recreation patterns, and therefore, identify appropriate approaches which are needed to serve their specific social ethnic group. Rather than equate a lack of participation in any planning effort to uninterested community members, land managers need to look at cultural patterns, economics and available information as factors that might lead to this lack of participation. Public land managers might need to partner with other groups to better serve this diverse population.

Meadowood Farm: The Meadowood Farm property, up until October 18, 2001, was privately owned and not open to the general public. The owner of the property conducted a commercial horse-boarding business with approximately 50 horses boarded at the facility. The owners of the horses boarded at Meadowood Farm used existing roads on the property for trail riding and other areas for equestrian events such as jumping. A few bridle paths have been established on the

property. Recreation activities such as bird watching, nature study, hunting, and control line model airplane flying also occurred on the farm. However, these activities were restricted to individuals or groups who were granted permission to use Meadowood Farm by the owners.

When Meadowood Farm was acquired by the BLM, it was closed to the general public to protect natural and cultural resources while this land-use plan was being prepared. A special recreation permit was issued to allow the horse boarding operation to continue until the planning process is complete and land-use allocations are determined. The rationale for continuing the horse boarding operation was based primarily on the logistical difficulty of individuals finding alternative horse boarding facilities.

Nearby Recreation Areas: There are three developed recreation areas in the vicinity of the Meadowood Farm property (see Appendix A Map 1). These areas are:

Mason Neck State Park: Mason Neck State Park is managed by Virginia's Department of Conservation and Recreation and is approximately one-quarter mile south of the southern boundary of Meadowood Farm, approximately 5.5 miles by car. The Park is 1,814 acres in size and is a day-use only facility, however group camping can be arranged by permit. There are picnic tables, but no shelters are provided. Also in the Park there are 3 miles of self-guided hiking trails (no bridle paths) and an Environmental Education Center and Visitor Center. Water is adjacent to the park on the west boundary, however, car top boat launching is the only water-oriented activity at the park.

Occoquan Regional Park: Occoquan Regional Park is managed by the Northern Virginia Regional Park Authority (NVRPA). The Park offers 400 acres of recreational space and is approximately 6 miles northwest of Meadowood Farm. Recreational features include: fishing access points, a boat ramp, soccer fields, softball and baseball fields, picnic shelters, and hiking/walking trails.

Pohick Bay Regional Park: Pohick Bay Regional Park, about 1,000 acres, is also managed by the NVRPA and is less than one-half mile east of Meadowood Farm. Recreational features include: 18-hole golf course, driving range, family campground, group camping, boat rentals, boat ramp, outdoor swimming pool, bridle paths (4 miles), nature trails, picnic shelters, tables, and grills.

Planned Recreation Development on Mason Neck: At this time the only known planned recreation development being considered in the vicinity of Meadowood Farm is the establishment of a bicycle path. Fairfax County is considering development of a bicycle path that would parallel Gunston Road (State Route 242). This road is adjacent to the northeast boundary of Meadowood Farm, however, it is planned for the opposite side of the road (Personal communication, Fairfax County recreation officials, 1998).

Recreation Opportunity Spectrum Classification

An explanation of the Recreation Opportunity Spectrum (ROS) is found in Appendix B.

Meadowood Farm is not adjacent to, nor in proximity of, other BLM-administered public domain lands in Virginia. At present, Meadowood Farm has no recreational facilities except horse trails on the property. However, as mentioned previously, individuals boarding their horses at Meadowood Farm may use the property for recreational equestrian activities. The ROS classification which best fits Meadowood Farm is “Urban” (Appendix B).

Economic and Social

Fairfax County is part of the large urban population center of the Washington, D.C. Metropolitan Statistical Area. Fairfax County is the most populous county in Virginia. Table 3-3 shows the increase in population from 1990 to 2000, in both absolute and percentage values. Table 3-4 shows 1999 population estimates for communities in the Meadowood Farm area.

Table 3-3. Fairfax County Population Figures

Total Population 1990	818,358
Total Population 2000	969,749
Total % of change from 1990-2000	18.5%

Table 3-4. 1999 Population Figures for Cities Within Close Proximity to Meadowood Farm

City*	Population
Lorton, VA	<20,000
Alexandria, VA	128,283
Fairfax, VA	21,498
Mason Neck, VA	<20,000
Springfield, VA	<20,000

*within Fairfax County near planning area

Transportation

The Virginia Department of Transportation (VDOT) is responsible for maintaining the roads in the area around Meadowood Farm. Two, two-lane paved roads border the property. There is a left-turn lane from Route 1 (south) to Gunston Road, however, there are no turn lanes for making either a left or right turn from Gunston Road into Meadowood Farm. The VDOT estimates that approximately 2 million vehicles use Routes 1, 235, 241, and 626 monthly as people travel from destination to destination. Traffic on roads going to Meadowood Farm is expected to be highest during the peak times of visitor use at nearby recreation areas (see discussion under recreation).

Topography and Soils

Topography

Meadowood Farm is in the Coastal Plain Province. The Coastal Plain Province is characterized by broad rolling hills and moderate slopes. However, areas of flat to low-relief may be found along major rivers and near the Chesapeake Bay. The topography of Meadowood Farm is characterized by gently rolling hills to relatively flat upland areas (see Appendix A Map 3).

Soils

Table 3-5 shows the series number and series name of soils found on Meadowood Farm. A detailed description of the soils is found in Appendix C. The location of these soils series on Meadowood Farm is shown in Appendix A Map 4.

Table 3-5. Soils Found on Meadowood Farm

Soil Number	Soil Series	Acres
1	Mixed Alluvial Land	75
6	Hyattsville Fine Sandy Loam	43
34	Woodstown Fine Sandy Loam	21
37	Beltsville Silt Loam	43
38	Mecklenburg Silt Loam	34
44	Caroline Silt Loam	3
45	Matapeake Silt Loam	6
46	Mattapex Silt Loam	1
49	Lunt Fine Sandy Loam	45
54	Sassafras Fine Sandy Loam	95
61	Rolling Land Gravelly Sediments	18
64	Hilly Land Loamy Sediments	149
89	Tidal Marsh	13
118	Marine Clay	257

Waste, Hazardous or Solid

On August 24, 2001, Analytical Services Incorporated (ASI) of Jessup, Maryland performed a Modified Phase I Environmental Site Assessment (ESA) on Meadowood Farm. The Modified Phase I ESA indicated there were Recognized Environmental Conditions (RECs) on the Meadowood Farm property. These RECs, caused by fuel spills, were mitigated by removal in accordance with the Commonwealth of Virginia standards prior to BLM acquiring the property. There currently are no RECs on the Meadowood Farm property. Copies of the ESA are available for review at the Eastern States Office in Springfield, Virginia.

Based on the Modified Phase I report the following sites were identified:

1. Horse Graveyard: A horse graveyard is located just west and adjacent to the office building. The burial dates vary, with some dating back several years, and the graves are still being attended by the horse owners.
2. Bedding Disposal Area: The Bedding Disposal Area consists of a large stockpile, approximately 400 cubic yards, of mixed wood chips and horse manure.
3. Buried Stump Area: There is an area of buried stumps near the eastern property boundary. This area could pose a potential hazard to the public because subsurface water channeling has resulted in surface subsidence and several potholes.
4. Biological Waste: Biological waste is limited to horse manure which has been spread over the fields or hauled away by the local farmers. Disposal of all veterinary sharp needles is done in compliance with state laws at an approved facility.

Water Quality, Surface and Ground

The water supply on Meadowood Farm is from three sources. At 10406 Gunston Road, a spring-fed pump house supplies water to the office, stables, one residence, and the horse pastures. A well at this site, drilled in 1976, has not been used for human consumptive purposes for some time. Both of these sources are unsuitable for human consumption due to the presence of coliform and nitrates. Bottled water is currently being delivered for human consumption, and plans are underway for connection to the municipal water supply. At 10530 Gunston Road, a residence (currently unoccupied) is served by a well that also tested as unsuitable for drinking purposes. At 10207 Old Colchester Road, a well supplying an unoccupied residence was recently abandoned following County procedures. At 10705 Belmont Boulevard, a residence is supplied by municipal water lines.

The habitable structures on Meadowood Farm are all served by individual septic tank and disposal field systems. These systems were serviced and inspected by a certified inspector prior to acquisition by the BLM.

Natural or naturalized surface water features include Thompson Creek and its tributaries, Massey Creek and its tributaries, three ponds created by artificial dams, and several springs. Current monitoring indicates runoff from the property is good to excellent in water quality.

Water Quality Sampling: According to the Phase II report, on August 29, 2001, and again on September 10, 2001, ASI collected six water samples from the subject property. The water quality samples were collected from six locations: the spring house at 10406 Gunston Road (prior to the sanitization of the spigot); a hydrant fed by the same spring house; the office faucet at 10406 Gunston Road; a 332-foot deep well at 10406 Gunston Road; a spring in the rear of the residence at 10530 Gunston Road; and the kitchen faucet (fed from a shallow well) at 10530 Gunston Road. All water samples were analyzed for nitrate and nitrite by USEPA Method 300.0, total Coliform, and E. Coliform by USEPA Method 9223 and Fecal Coliform by USEPA Method 9221C. Results of analysis show nitrate and nitrite concentrations are less than federally established Maximum Contaminant Level (MCL) for a safe drinking water supply. However, total coliform was present in four of the samples (the spring house and the 332-foot deep well at 10406 Gunston Road, and the kitchen faucet and back-yard spring at 10530 Gunston Road). The MCL for total coliform (which includes fecal coliform) is zero. Therefore, the water at both locations is not suitable for potable use. Also, in October 2001, a sample from the office kitchen faucet indicated total coliform was present. These results are listed in Table 3 of the Phase II report. According to Mr. John Dixon, Environmental Health Specialist, Fairfax County Health Department, any rain event could result in coliform presence in a spring-fed water supply system, and the coliform could be expected to die-off in the intervals between rain events.

Wetlands/Riparian Areas

There are 30 acres of wetlands on the 800 acres of Meadowood Farm (see Appendix A Map 2). According to the national wetlands inventory, there are six different wetland types on the property. These are identified and described in Table 3-6. The following discussion of Resource Protection Areas (RPAs) includes wetland and non-wetland riparian areas.

The Potomac River is a major tributary to the Chesapeake Bay, and jurisdictions within the Potomac River watershed are subject to the requirements of the Chesapeake Bay Preservation Act of 1988 (CBPA). The CBPA requires counties, cities, and towns of Tidewater Virginia to designate and map RPAs and Resource Management Areas (RMAs) in order to protect the water quality of the Chesapeake Bay.

Table 3-6. Acres of Wetlands (Wetlands Defined by Wetland Type) at Meadowood Farm Property

ATTRIBUTE	COUNT	SUM AREA (ft ²)	ACRES
PEM1E - Palustrine, Emergent, Persistent, Seasonally Flooded/Saturated	1	18,097	0.42
PEM1Eb - Palustrine, Emergent, Persistent, Seasonally Flooded/Saturated	1	2,134	0.05
PFO1A - Palustrine, Forested, Broad-leaved Deciduous, Temporarily Flooded	2	847,616	19.46
PFO1Cb - Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded, Beaver	1	353,453	8.00
PFO1Eb - Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded/Saturated	1	273,846	1.38
PUBHh - Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded	3	51,217	2.10
Total Acres Wetlands	12	1,283,613	31.41

Fairfax County's Chesapeake Bay Preservation Ordinance (Chapter 118 of the Code of the County of Fairfax, Virginia) divides the county into RPAs and RMAs. Development and land disturbing activities (with a few exceptions) are prohibited in RPAs. RMAs are regulated to protect RPAs and water resources from degradation resulting from development and land disturbing activity. The regulatory requirements in RMAs are expressed in the form of performance criteria. These performance criteria range from general issues (i.e., minimize impervious areas, minimize land disturbance areas, and maximize preservation of indigenous vegetation) to specific requirements for nutrient pollutant removal from storm-water runoff, maintenance agreements for storm-water management systems that incorporate best management practices, erosion and sedimentation controls, and septic field sizing and maintenance.

The Fairfax County Ordinance defines RPAs in Section 118-1-7(b) of the Ordinance as:

- a. A tidal wetland;*
- b. A tidal shore;*
- c. A tributary stream;*
- d. A non-tidal wetland connected by surface flow and contiguous to a tidal wetland or tributary stream;*
- e. A buffer area as follows:*
 - (i) Any land within a major flood plain; and*
 - (ii) Any land within 100 feet of a feature listed in Sections 118-1-7(b)(1)-(4).*

The Fairfax County Ordinance defines RMAs in Section 118-1-7(c) to encompass the entire county by stating, "RMAs shall include any area not designated as an RPA." The total acreage of RPAs mapped by the county on Meadowood is 150 acres (Appendix A Map 5). Currently the Fairfax County Department of Public Works and Environmental Services has a team working on the update of this map based on the perennial streams and the tributaries to these perennial streams. It is estimated that ground truthing will increase the total RPA acreage by 75 to 100 acres. This encompasses mainly Thompson Creek and Massey Creek and their tributaries.

In addition, various seep spring wetlands have been identified on the property by the resource assessment conducted by George Mason University. These are important pockets of biodiversity and microhabitats that have potential for state-listed invertebrates.

Equine Operations

Meadowood Farm currently supports a commercial horse boarding operation that uses the stables and indoor arena, outside riding area, and fenced horse pastures. There is room for approximately 50 horses at the stables. The privately owned, boarded horses are separated into two large fenced pastures by sex (mares and geldings are pastured separately). The smaller paddocks are used for horses requiring isolation or reduced forage. The current pasture allocation is approximately 50 fenced acres. The boarders have free access to ride on trails throughout the property as well as in the indoor arena. The majority of trail riding by boarders is done along the interior dirt access roads and along the edges of the open fields. The existing horse population causes some soil erosion in areas with steep inclines next to the stables, as their hooves tend to dig into, rather than compact, the sandy soils. Although the unfenced open fields on Meadowood Farm historically have been used for hay production, currently all of the horse feed (i.e., hay and grain) as well as the stall bedding (baled wood shavings) are purchased off-site.

These privately owned horses are generally turned out in the pastures, and are stalled when the weather or other reasons (e.g., illness, injury, preference of owner) dictate. Animals in the boarding stables produce approximately 164 cubic feet (two manure spreader loads) of mixed manure/wood shavings per day from the stables. This mix was spread on the historic hay fields, resulting in the addition of organic materials to the soil horizon. The amount of manure/bedding waste that is produced varies according to the season and weather, as most of the horses remain outside in good weather. According to Davis and Swinker, with the Colorado State University Cooperative Extension, on average, a 1,000-pound horse produces 45 to 50 pounds of manure per day, or 9 tons per year. Horse manure contains valuable fertilizer elements as well as 40 percent moisture content. That which is deposited in pastures at Meadowood Farm degrades quickly under sunlight and precipitation, and becomes mixed with the upper soil horizon.

Wildlife

According to the World Wildlife Fund (WWF), Meadowood Farm lies in the northern end of the Southern Mixed Forests Ecoregion. This ecoregion is designated by the WWF as having Globally Outstanding biodiversity for its species richness and species endemism. Region-wide there is a high amount of total species richness of vertebrates, snails, butterflies, and plants. However, the Southern Mixed Forests Ecoregion has only 1 to 4 percent of its original habitat area remaining intact. Therefore, protection and restoration of the habitat in this ecoregion is a high priority for wildlife and biodiversity conservation.

More than 125 species of birds have been observed from the Meadowood Farm property. They range from ducks and shorebirds, to woodpeckers and hawks, and include warblers and tanagers. Upland game birds residing on the property include woodcock, northern bobwhite and eastern turkey. Isolated mixed hardwood forests along the east coast are commonly considered migratory song bird attractions, and the forests of Meadowood Farm are not an exception. Fifteen to twenty species of migratory songbirds are common in spring surveys. Waterfowl, flycatchers, and kingfishers take advantage of the ponds and streams for cover, resting, and foraging. Seven species of woodpeckers are especially common in the patches of standing dead trees on the property. Forest edge and grassland species include bluebirds, sparrows, meadowlarks, and phoebes. Brown-headed cowbirds, song bird nest parasites that are short grass prairie residents, are also drawn to the close-cut grass areas. European starlings and English sparrows are common exotic birds around the horse barn developments.

Reptiles and amphibians are diverse and numerous. From the species known to occur on Pohick Bay Regional Park, as many as 37 reptiles and amphibians may occur on Meadowood Farm. To date, 15 amphibian species, (4 salamanders and 11 frogs), and 15 reptile species (5 turtles, 2 lizards, and 8 snakes) have been documented to exist on the property.

Approximately 43 species of mammals could occur on Meadowood Farm. Already 21 species have been documented on the property. Among them are the southern flying squirrel and three other species of the squirrel family. Raccoon, fox, and beaver activity are common, and signs of these species and others are easy to see along the creeks. Two exotic mammals, the house mouse and the Norway rat, also occur on the property. White-tailed deer find cover in the wooded areas of the property and graze the pastures mostly in the mornings and the evenings. Fairfax County as a whole has a deer/human conflict issue where deer/auto collisions are frequent and dangerous. In addition, over browse by white-tailed deer is documented to have negative effects on migratory song bird habitat and native vegetation. The county objective for deer densities in Fairfax County is between 15 and 20 deer per square mile. Currently, the Mason Neck population density is approximately 30 to 45 deer per square mile. The county and state are working together to decrease local deer populations and deer/car collisions (for more information go to www.co.fairfax.va.us/comm/deer/deermgt.htm on the internet).

Fisheries

Streams on the property have not yet been inventoried. By casual observation there appears to be at least five to six species of fish present in the streams such as Thompson Creek, Massey Creek, and their tributaries.

There are three man-made ponds on Meadowood Farm (Appendix A Map 2). The previous owner of the property stocked two of these ponds for private recreational fishing. The third pond was originally created for a swimming pool. All ponds contain some fish species. A species inventory was conducted on May 15, 2002, in coordination with the Virginia Department of Game and Inland Fisheries (DGIF). The DGIF indicated at that time that they will stock fish in the ponds free of charge if the ponds are open to public fishing and DGIF is allowed to manage

them cooperatively with the BLM (J. Odenkirk, DGIF, May 15, 2002). The species inventory of May 15, 2002, indicated the following:

Jackson Pond (Pond near Belmont Blvd)

Size: approximately 0.7 acres.

Environmental Conditions: extreme filamentous green algae problem, tannin stained water, maximum depth of 10 feet, moderate riparian cover and good bank fishing access.

Species encountered: Two species: largemouth bass and bluegill. Both are self-sustaining in the pond. These are the two preferred fish for a small pond mixed community. There was a high ratio of bass to bluegill (8 bass, 5 bluegill collected). Both populations were composed of very large individuals, indicating intense predation by bass despite the dense algal mats. Bass were up to 24 inches (7 pounds and over) and bluegills were up to 8 inches.

Gunston Pond (Pond near Gunston Rd)

Size: approximately 1 acre.

Environmental Conditions: extreme algae and naiad infestation, maximum depth of 7 feet, moderate riparian cover and excellent bank fishing access - all in a park-like setting.

Species Encountered: Species collected included black crappie, largemouth bass, bluegill and redear sunfish. All of these species are self-sustaining in the pond. All are desirable species in small ponds except for crappie, due to their propensity to overpopulate and stunt while competing with other species. Catch rates were much higher here (more in line with a "normal" farm pond) and size structures were lower than Jackson Pond, although another trophy bass and many large redear sunfish and bluegill were observed.

Swimming Pool Pond (Not Inventoried)

This small pond is split by the Meadowood Farm property line. Less than .3 acres is BLM administered property.

Threatened and Endangered Species

There is a bald eagle nest site within one-quarter-mile of the Meadowood Farm property. Along the stream banks there is habitat for small-whorled pagonia (also a federally listed species).

State-listed species or state species of concern that may occur on Meadowood Farm include the wood turtle, the Northern Virginia well amphipod, Pizzini's amphipod, the tidewater amphipod, and the river bulrush. Prior to any new activities on Meadowood Farm, extensive inventories (proposed to begin in 2003) for state and federally listed species will be completed.

Coordination of this has already begun with the Virginia Department of Conservation and Recreation. Consultation has begun and will continue with the U.S. Fish and Wildlife Service. To date, no information that warrants formal consultation has been gathered.

Wild and Scenic Rivers/Wilderness Areas

There are no rivers or streams running through or in proximity of Meadowood Farm that are classified as, or eligible for, study under the Wild and Scenic Rivers Act (16 U.S.C. 1271 of 1968 as amended).

There are no federally managed lands on or in the vicinity of Meadowood Farm that meet the criteria for designation as wilderness under the Wilderness Act of 1964 as amended (16 U.S.C. 1121).

Vegetation

The various vegetation types on Meadowood Farm range from deciduous forest to wetland vegetation to artificially maintained historic hayfields. Overall, the native vegetation composition is a cross between that of the Piedmont and the Coastal Plain. The property, as stated in the Wildlife Section, lies in the northern end of the Mixed Forests Ecoregion as identified by the WWF. The vegetation types are shown by percent cover in Table 3-7. This information is based on interpretation of 1993 color infrared aerial photography and updated with 1997 color aerial photography (see Appendix A Maps 6 and 7). Major vegetation dominants and co-dominants are being identified and tabulated for the property by a resource assessment conducted by the George Mason University (communication with George Taylor, George Mason University, August 2002).

Table 3-7. General Vegetation Types on the Meadowood Farm Property

Vegetation Cover	Acres	Percent Cover
Forest (non-riparian)	608	76%
Pasture	50	6%
Historic Hayfields	108	12%
Wetland and Riparian Vegetation	31	4%
Non-Vegetated Human Caused Disturbances ¹	15	2%
Open Water Ponds (3)	2	0.3%
Total	804	100.0

¹ Includes roads, structures, parking area, lawns and sand/gravel pit.

The previous owner of Meadowood Farm maintained the pastures and hayfields through seeding a diversity of species, and periodically liming, treating with herbicide, and fertilizing. The predominant species in the historic hayfields appears to be orchard grass and red fescue, and clover, dandelions, and red fescue seem to be the prevalent species in the pastures. More common exotic, invasives in the hayfields include orchard grass and lespedeza.

The mixed hardwoods of the forested areas are a result of 60 to 70 years of secondary succession after the area was logged in the 1930s. The forested areas contain a great diversity of tree species and understory tree, shrub and forb species. There is also a diversity of combinations of overstory and understory plant species throughout the property. The exotic, invasive Japanese stilt grass occurs sporadically in patches in the upland forest and in extensive areas bordering streams. As the forest continues to mature, it appears the conifers will continue to decline.

An ecologically important area not identified above is an ecotone. An ecotone is transition area between two major habitat or vegetation types. A common example of this is the forest/hayfield ecotone. Ecotones are highly attractive to wildlife in that they afford opportunity to take advantage of a greater diversity of food, foraging, and cover opportunities.